WHAT IS CLAIMED IS:

1.   A communications system comprising:

a communications device participating in a packet-based communication session with a remote device, the communications device operable to determine that a quality parameter for the communication session fails to meet a threshold and to request enhancement of the communication session from a remote resource manager responsive to the determination; and

the resource manager operable to receive the request from the communications device, to allocate a digital signal processing (DSP) resource for the communication session, and to route the communication session through the DSP resource, wherein the DSP resource processes packets for the communications device to enhance the communication session.

2.   The communications system of Claim 1, wherein:

the communication session comprises a voice over packet (VoP) session; and

the communications device comprises:

a user interface operable to generate audio output based on first packets received from the remote device and to receive audio input from a user;

a processor operable to generate second packets encoding the received audio input and addressed to the remote device; and

a network interface operable to transmit the second packets for delivery to the remote device.

3.   The communications system of Claim 1, wherein the resource manager allocates the DSP resource based on a class of service for the communication session.

4.   The communications system of Claim 1, wherein:

the communications device communicates a value for the quality parameter as a portion of the request for enhancement of the communication session; and

the resource manager allocates the DSP resource based on the value for the quality parameter and available DSP resources in a DSP pool.

5.   The communications system of Claim 1, wherein the DSP resource is one of a plurality of DSP resources available to process packets for a plurality of communications devices.

6.   The communications system of Claim 1, wherein the DSP resource is operable to:

receive packets having voice information from the remote device;

process the packets to reduce spurious signals in the voice information; and

communicate the processed packets for presentation to a user at the communications device.

7.   The communications system of Claim 1, wherein the DSP resource is operable to enhance the communication session by compressing and decompressing information to reduce bandwidth requirements for the communication session.

8.   A method for enhancing a packet-based communication session comprising:

receiving packets associated with a packet-based communication session from a remote device;

presenting contents of packets to a user;

determining that a quality parameter for the communication session fails to meet a threshold;

based on the determination, requesting enhancement of the communication session from a remote resource manager; and

receiving enhanced packets from a digital signal processing (DSP) resource assigned by the resource manager responsive to the request, the enhanced packets generated by the DSP resource by processing information in packets communicated by the remote device.

9.   The method of Claim 8, wherein the communication session comprises a voice over packet (VoP) session.

10.   The method of Claim 8, wherein the DSP resource is one of a plurality of DSP resources available to enhance communication sessions for a plurality of communications devices.

11.   The method of Claim 8, wherein the quality parameter is at least one of packet loss for the communication session, packet delay for the communication session, echo in the communication session, and performance of a jitter buffer for the communication session.

12.   The method of Claim 8, further comprising communicating the quality parameter to the resource manager, wherein the quality parameter permits the resource manager to allocate DSP resources based on quality parameters received from a plurality of other requesting devices.

13.   A resource management apparatus comprising:

an interface operable to receive a request from a first communications device to enhance a packet-based communication session between the first communications device and a second communications device;

a processor operable to allocate a digital signal processing (DSP) resource for the communication session responsive to the request; and

the DSP resource operable to receive packets for the communication session from the second communications device, to process the packets to enhance information encoded in the packets, and to communicate the processed packets to the first communications device using the interface.

14.   The apparatus of Claim 13, wherein the communication session comprises a voice over packet (VoP) session.

15.   The apparatus of Claim 13, further comprising a plurality of DSP resources available to process packets for a plurality of communication sessions.

16.   The apparatus of Claim 13, wherein:

the packets from the second communications device comprise voice information; and

the DSP resource is further operable to process the packets to reduce spurious signals in the voice information.

17.   The apparatus of Claim 13, wherein:

the packets from the second communications device comprise compressed information; and

the DSP resource is further operable to process the packets from the second communications device to decompress the compressed information.

18.   The apparatus of Claim 17, wherein the DSP resource is further operable to:

receive packets for the communication session from the first communications device;

compress voice information encoded in the packets from the first communications device;

encode the compressed voice information in compressed packets; and

communicate the compressed packets to the second communications device, wherein the compressed packets reduce network bandwidth usage of the communication session.

19.   The apparatus of Claim 13, wherein the processor is further operable to:

determine a class of service for the first communication session; and

allocate the DSP resource for the communication session based on the class of service.

20.   The apparatus of Claim 13, wherein the processor is further operable to:

determine that an efficacy of the DSP resource in enhancing the packets fails to meet a threshold; and

in response to the determination, de-allocating the DSP resource from the communication session.

21.   A method for enhancing packet-based communications of a remote device comprising:

receiving a request from a first communications device to enhance a packet-based communication session between the first communications device and a second communications device;

allocating a digital signal processing (DSP) resource for the communication session responsive to the request;

receiving packets for the communication session from the second communications device;

processing the packets using the allocated DSP resource to enhance information encoded in the packets; and

communicating the processed packets to the first communications device using the interface.

22.   The method of Claim 21, wherein the communication session comprises a voice over packet (VoP) session.

23.   The method of Claim 21, wherein:

the packets from the second communications device comprise voice information; and wherein

processing the packets using the allocated DSP resource reduces spurious signals in the voice information.

24.   The method of Claim 21, wherein processing the packets using the allocated DSP resource comprises decompressing compressed information encoded in the packets.

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25.   The method of Claim 24, further comprising:

receiving packets for the communication session from the first communications device;

compressing voice information encoded in the packets from the first communications device;

encoding the compressed voice information in compressed packets; and

communicating the compressed packets to the second communications device, wherein the compressed packets reduce network bandwidth usage of the communication session.

26.   Logic for enhancing packet-based communications of a remote device, the logic encoded in media and operable when executed to:

receive a request from a first communications device to enhance a packet-based communication session between the first communications device and a second

5   communications device;

allocate a digital signal processing (DSP) resource for the communication session responsive to the request;

receive packets for the communication session from the second communications device;

10   process the packets using the allocated DSP resource to enhance information encoded in the packets; and

communicate the processed packets to the first communications device using the interface.

15   27.   The logic of Claim 26, wherein:

the packets from the second communications device comprise voice information; and the logic further operable to:

process the packets using the allocated DSP resource reduces spurious signals in the voice information.

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28.   The logic of Claim 26, further operable to process the packets using the allocated DSP resource to decompressing compressed information encoded in the packets.

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29.   The logic of Claim 28, further operable to:

receive packets for the communication session from the first communications device;

compress voice information encoded in the packets from the first communications device;

encode the compressed voice information in compressed packets; and

communicate the compressed packets to the second communications device, wherein the compressed packets reduce network bandwidth usage of the communication session.

30.   A resource management apparatus comprising:

means for receiving a request from a first communications device to enhance a packet-based communication session between the first communications device and a second communications device;

means for allocating a digital signal processing (DSP) resource for the communication session responsive to the request;

means for receiving packets for the communication session from the second communications device;

means for processing the packets using the allocated DSP resource to enhance information encoded in the packets; and

means for communicating the processed packets to the first communications device using the interface.

31.   The apparatus of Claim 30, wherein the means for processing the packets using the allocated DSP resource comprises means for decompressing compressed information encoded in the packets.

32.   The apparatus of Claim 31, further comprising:

means for receiving packets for the communication session from the first communications device;

means for compressing voice information encoded in the packets from the first communications device;

means for encoding the compressed voice information in compressed packets; and

means for communicating the compressed packets to the second communications device, wherein the compressed packets reduce network bandwidth usage of the communication session.